

Part III (15 credits)

Please refer to the Department publication *Regents Examination in Physics: Rating Guide for Part III*. Teachers should become familiar with this guide before rating students' papers.

Scoring Criteria for Calculations

For each question requiring the student to *show all calculations, including the equation and substitution with units*, apply the following scoring criteria:

Allow a total of two credits for questions 116 and 124.

- Allow one credit for the equation and substitution of values with units. If the equation and/or substitution with units is not shown, do not allow this credit.
- Allow one credit for the correct answer (number and unit). If the number is given without the unit, do not allow this credit.
- Penalize a student only once per equation for omitting units.
- Allow full credit even if the answer is not expressed with the correct number of significant figures.

116 Allow a total of two credits. Refer to *Scoring Criteria for Calculations* in this scoring key.

Examples of Acceptable Responses

$$\Delta PE = mg\Delta h$$

$$\Delta PE = (20. \text{ kg})(9.8 \text{ m/s}^2)(5.0 \text{ m})$$

$$\Delta PE = 980 \text{ J}$$

or

$$\Delta PE = 9.8 \times 10^2 \text{ kg}\cdot\text{m}^2/\text{s}^2$$

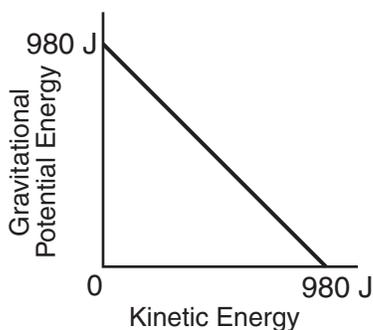
117 Allow one credit.

$$980 \text{ J}$$

Allow credit for an answer that is consistent with (equal to) the student's answer to question 116.

118 Allow a total of two credits.

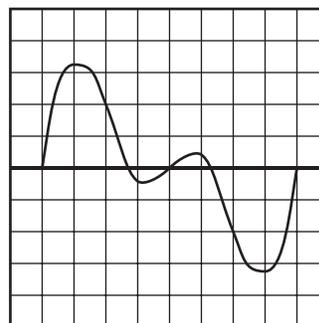
Example of Acceptable Response



Allow one credit for a straight diagonal line with negative slope.
Allow one credit for both values labeled. Allow this credit if labeled values correspond to the student's answers to questions 116 and 117.

119 Allow a total of three credits.

Example of Acceptable Response



Allow one credit if the beginning, middle, and end points are correct (zero displacement).

Allow one credit if the maximum displacements are correct (± 0.3 grid space).

Allow one credit if the destructive interference points are correct (± 0.3 grid space).

120 Allow one credit.

Examples of Acceptable Responses

amplitude

or

speed

121 Allow one credit.

Examples of Acceptable Responses

wavelength

or

frequency

or

period

PHYSICS — *continued*

Part II

Allow a total of 20 credits, one credit for each question, for only two of the six groups in this part. If more than two groups are answered, only the first two should be considered.

Group 1
Motion in a Plane

- 56 1 2 3 ~~X~~
 57 1 ~~X~~ 3 4
 58 ~~X~~ 2 3 4
 59 1 2 ~~X~~ 4
 60 1 2 ~~X~~ 4
 61 1 2 3 ~~X~~
 62 ~~X~~ 2 3 4
 63 1 ~~X~~ 3 4
 64 1 2 ~~X~~
 65 1 2 ~~X~~

Group 3
Electromagnetic Applications

- 76 ~~X~~ 2 3 4
 77 1 2 ~~X~~ 4
 78 1 ~~X~~ 3 4
 79 1 2 3 ~~X~~
 80 1 2 ~~X~~ 4
 81 1 2 3 ~~X~~
 82 ~~X~~ 2 3 4
 83 ~~X~~ 2 3 4
 84 1 2 ~~X~~ 4
 85 1 2 3 ~~X~~

Group 5
Solid State

- 96 1 2 3 ~~X~~
 97 ~~X~~ 2 3 4
 98 1 2 ~~X~~ 4
 99 1 ~~X~~ 3 4
 100 1 ~~X~~ 3 4
 101 1 2 ~~X~~ 4
 102 1 2 3 ~~X~~
 103 1 2 3 ~~X~~
 104 ~~X~~ 2 3
 105 1 ~~X~~ 3

Group 2
Internal Energy

- 66 1 ~~X~~ 3 4
 67 1 ~~X~~ 3 4
 68 1 2 ~~X~~ 4
 69 1 2 3 ~~X~~
 70 1 ~~X~~ 3 4
 71 ~~X~~ 2 3 4
 72 ~~X~~ 2 3 4
 73 1 2 3 ~~X~~
 74 1 ~~X~~ 3
 75 1 2 ~~X~~

Group 4
Geometric Optics

- 86 1 2 ~~X~~ 4
 87 1 2 ~~X~~ 4
 88 1 ~~X~~ 3 4
 89 1 2 3 ~~X~~
 90 1 ~~X~~ 3
 91 1 2 3 ~~X~~
 92 1 2 3 ~~X~~
 93 ~~X~~ 2 3 4
 94 1 2 ~~X~~ 4
 95 1 2 ~~X~~ 4

Group 6
Nuclear Energy

- 106 ~~X~~ 2 3 4
 107 ~~X~~ 2 3 4
 108 1 2 3 ~~X~~
 109 1 ~~X~~ 3 4
 110 1 2 3 ~~X~~
 111 1 2 ~~X~~ 4
 112 1 2 3 ~~X~~
 113 ~~X~~ 2 3 4
 114 1 ~~X~~ 3 4
 115 1 2 ~~X~~ 4

FOR TEACHERS ONLY

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The University of the State of New York
REGENTS HIGH SCHOOL EXAMINATION

PHYSICS

Tuesday, January 23, 2001 — 9:15 a.m. to 12:15 p.m., only

SCORING KEY

Part I

Refer to the table on the answer paper for the number of credits to be given on Part I.

Part I (65 credits)

1	1	2	X	4	21	1	2	X	4	41	1	X	3	4
2	1	2	3	X	22	X	2	3	4	42	1	2	3	X
3	1	X	3	4	23	X	2	3	4	43	X	2	3	4
4	1	X	3	4	24	1	2	3	X	44	1	2	X	4
5	1	2	X	4	25	1	2	3	X	45	1	2	X	4
6	X	2	3	4	26	1	X	3	4	46	1	2	X	4
7	1	2	X	4	27	1	2	X	4	47	1	2	3	X
8	1	2	3	X	28	1	2	3	X	48	1	X	3	4
9	1	2	X	4	29	X	2	3	4	49	1	X	3	
10	1	2	X	4	30	1	2	3	X	50	X	2	3	
11	1	2	3	X	31	1	2	X	4	51	X	2	3	
12	1	2	X	4	32	1	2	X	4	52	X	2	3	
13	1	X	3	4	33	1	X	3	4	53	1	2	X	4
14	1	2	X		34	X	2	3	4	54	1	X	3	4
15	X	2	3		35	1	2	X	4	55	1	2	X	4
16	X	2	3	4	36	1	X	3	4					
17	1	X	3		37	1	X	3						
18	1	2	X		38	1	2	3	X					
19	1	2	3	X	39	X	2	3	4					
20	X	2	3	4	40	X	2	3	4					

Directions to the teacher:

Use only *red* ink or *red* pencil in rating Regents examination papers. Do not correct the student's work by making insertions or changes of any kind.

Scan each answer paper to make certain that the student has marked only one answer for each question. If a student has marked two or more answers with an X in ink, draw a red line through the row of numbers for that question to indicate that no credit is to be allowed for that question when the answer paper is scored.

To facilitate scoring, the scoring key has been printed in the same format as the answer paper. The scoring key for **Part I and Part II** may be made into a scoring stencil by punching out the correct answers. Be sure that the stencil is aligned with the answer paper so that the holes correspond to the correct answers. To aid in proper alignment, punch out the first and last item numbers in each part and place the stencil on the answer paper so that these item numbers appear through the appropriate holes.

[OVER]

122 Allow one credit.

2.03 eV

123 Allow one credit.

Examples of Acceptable Responses

$$3.2 \times 10^{-19} \text{ J}$$

or

$$(2.03 \text{ eV})(1.6 \times 10^{-19} \text{ J/eV}) = 3.248 \times 10^{-19} \text{ J}$$

Allow credit for an answer that is consistent with the student's answer to question 122.

124 Allow a total of two credits. Refer to *Scoring Criteria for Calculations* in this scoring key.

Examples of Acceptable Responses

$$E = hf$$

$$f = \frac{E}{h}$$

$$f = \frac{3.2 \times 10^{-19} \text{ J}}{6.6 \times 10^{-34} \text{ J}\cdot\text{s}}$$

$$f = 4.8 \times 10^{14} \text{ Hz}$$

or

$$f = 4.848 \times 10^{14} \frac{1}{\text{s}}$$

Allow credit for answer that is consistent with the student's answer to question 123.

125 Allow one credit.

Examples of Acceptable Responses

Nothing will happen.

or

The photon will not be absorbed.

or

The mercury atom will remain in the ground state.